Fbln5 Cas9-CKO Strategy

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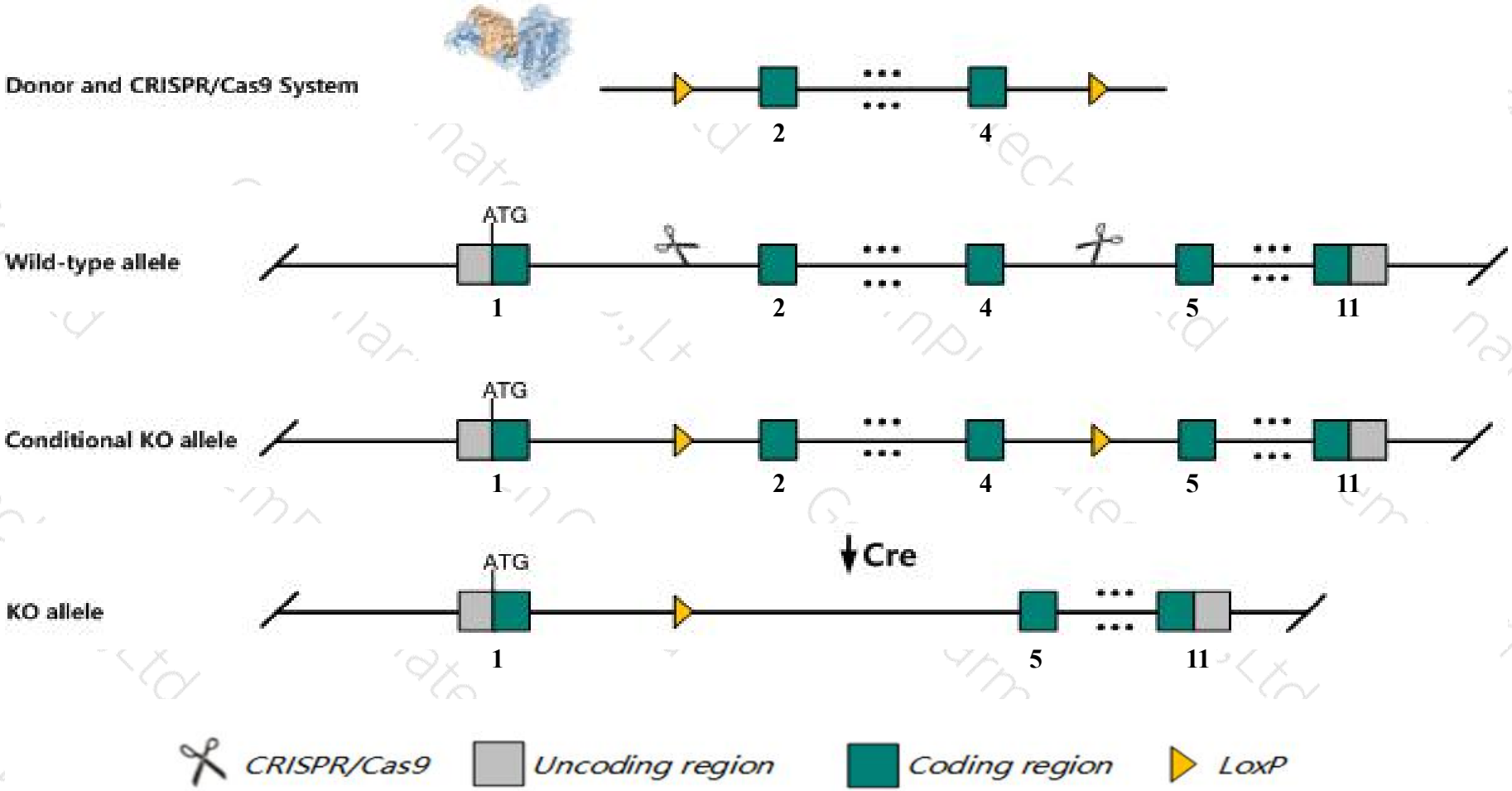
Project Overview

Project Name	***Fbln5***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbln5* gene. The schematic diagram is as follows:



Technical routes

- The *Fbln5* gene has 3 transcripts. According to the structure of *Fbln5* gene, exon2-exon4 of *Fbln5-201* (ENSMUST00000021603.8) transcript is recommended as the knockout region.The region contains 362bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fbln5* gene. The brief process is as follows:CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ According to the existing MGI data,Homozygous inactivation of this locus impairs elastic fiber development. Mutant mice exhibit loose skin, lung abnormalities leading to emphysema, and cardiovascular defects affecting the aorta.

➢ The *Fbln5* gene is located on the Chr12. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.

➢ This Strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Fbln5 fibulin 5 [Mus musculus (house mouse)]

Gene ID: 23876, updated on 3-Feb-2019

Summary

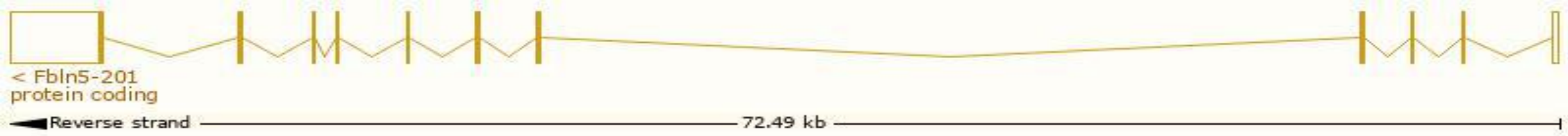
Official Symbol	Fbln5 provided by MGI
Official Full Name	fibulin 5 provided by MGI
Primary source	MGI:MGI:1346091
See related	Ensembl:ENSMUSG00000021186
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A55, DANCE, EVEC
Expression	Biased expression in kidney adult (RPKM 44.5), bladder adult (RPKM 22.1) and 14 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

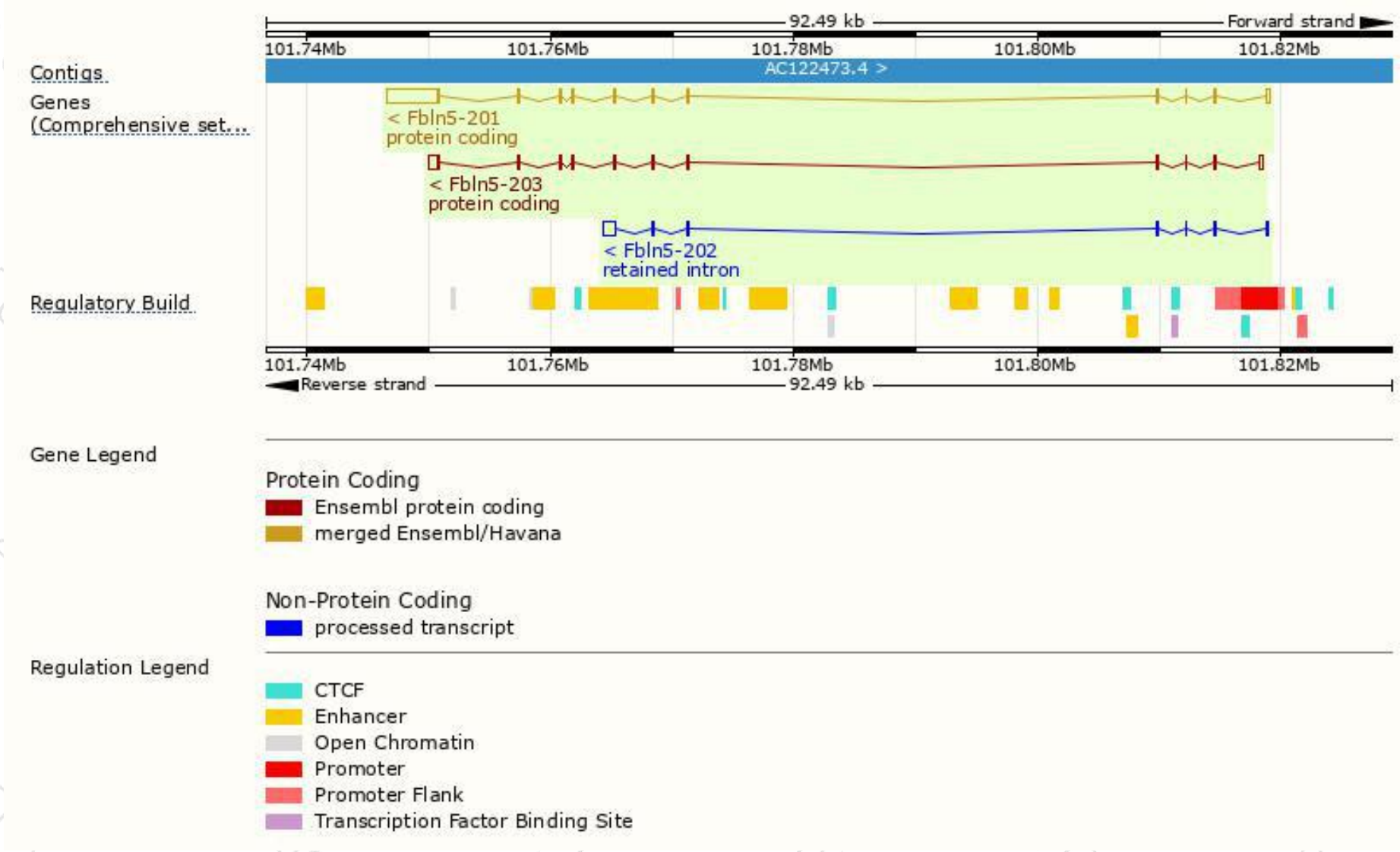
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbln5-201	ENSMUST00000021603.8	5829	448aa	Protein coding	CCDS36525	Q9WVH9	TSL:1 GENCODE basic APPRIS P1
Fbln5-203	ENSMUST00000222587.1	2371	461aa	Protein coding	-	A0A1Y7VJW9	TSL:5 GENCODE basic
Fbln5-202	ENSMUST00000221373.1	1794	No protein	Retained intron	-	-	TSL:1

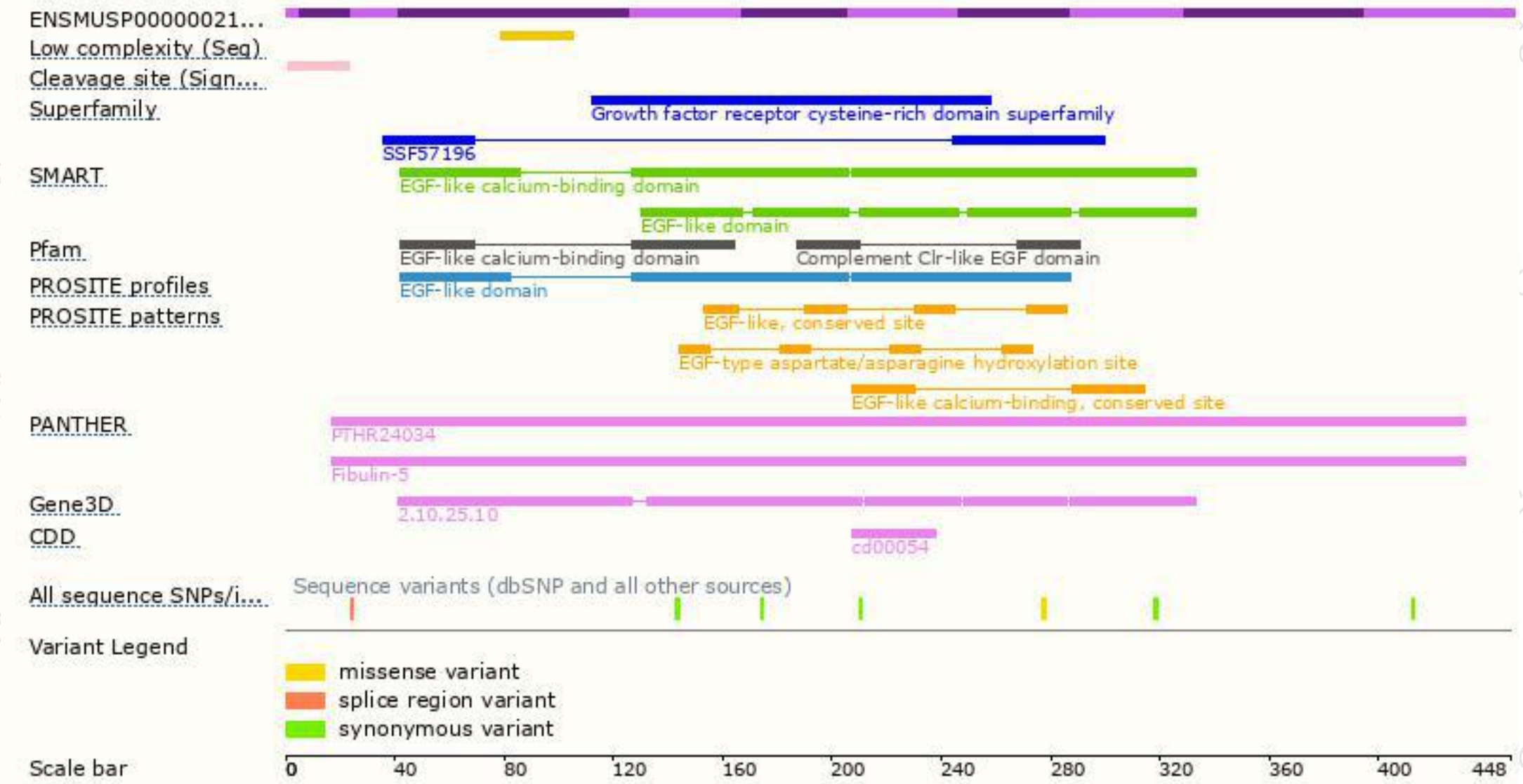
The strategy is based on the design of *Fbln5-201* transcript,The transcription is shown below



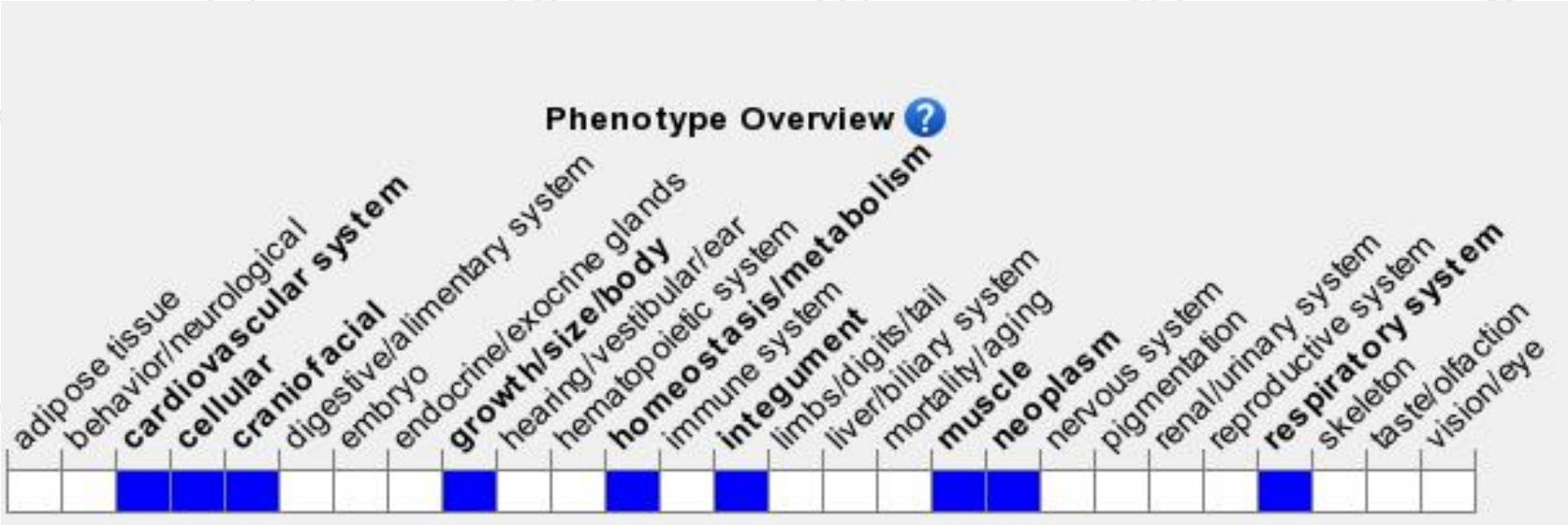
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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If you have any questions, you are welcome to inquire.

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